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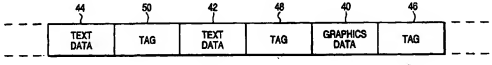
(54) Title: METHOD FOR RAPID TRANSMISSION OF PUBLICATION



(57) Abstract

A method of preparing data in an electronic publishing system that results in more rapid transmission in a network (26) and provides a method wherein published pages can be displayed on a variety of destination devices in a form most resembling their original publication. According to the method of the present invention, a host computer is programmed with sub-routines (80) for automatically laying out articles in specified fields according to selected templates (11 or 22) to conform to the requirements of the destination display/device (28, 30 or 32). Each sub-routine (80) is programmed for activation upon receipt of relatively brief instructional data, refered to as "tags" (46, 48 and 50) and "meta data". The tags (46, 48 and 50) are inserted along with the original data files (40, 42 and 44) to instruct the destination/host (28, 30 or 32) to activate the corresponding sub-routines (80). For example, the host computer, loaded with the required program, automatically lays out the text in fields according to pre-selected templates (11 or 22) for a particular size of paper.

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METHOD FOR RAPID TRANSMISSION OF PUBLICATION

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to electronic publishing and desktop publishing, and more particularly to a method of rapidly transmitting a publication to a user while retaining the appearance and feel of the original.

Brief Description of the Prior Art

The use of electronic publishing in the production of newspapers and other hard-copy publications is common practice at this time. Tools range from simple individual desktop systems such as Microsoft's "Publisher" to sophisticated multi-user systems like Adobe's "PageMaker" and "Acrobat" and "Quark Express System". A common characteristic of all of these tools is that they all take content from a variety of sources (news feeds, word files, etc.) and assist an author in generating a high quality publication. In all of these systems, the output press pages are precisely known and determined up-front, i.e., the size of the newspaper sheet, the physical dimensions of individual articles, etc. A disadvantage of these systems is that it is impossible, or at least very expensive, to make changes in the output from one form to another. For example, if a newspaper is to change its paper size, the publishing has to be redone from the beginning.

In the related field of electronic publishing for transmission of information to users through computer networks, the state of the art at this time is known as "web publishing". Authors, called "Web Masters" gather their input material and deploy a variety of tools to create "web pages". Web pages are similar to the press pages of the hard-copy publications discussed above in that they are finished products and not flexible in form. They are designed for viewing on a typical computer screen. The data content of web pages is heavy in volume because it

includes the final graphic art as it is to appear on a computer screen. Web pages are not "portable". For example, they cannot be used to produce press pages, etc. In fact, they cannot even be adapted readily for use on a computer system having a different screen resolution. The industry is currently focused on developing tools to make the process of creating web pages fast, efficient and attractive. The issue of rapid transmission and adaptability to a variety of destination devices is not addressed. As a result, it is currently impractical to transmit large quantities of web pages, and impossible to properly display a publication on a variety of destination devices.

In view of the above discussion, it is apparent that there is a need for a method of rapid and efficient transfer and display of publications to a variety of different destination devices to allow a user to receive and view publications in their original form.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a method of electronic publishing wherein pages can be more rapidly transmitted through a computer network to a user.

It is a further object of the present invention to provide a method of rapid transmission of published data that conforms to a variety of destination display devices.

Briefly, a preferred embodiment of the present invention includes a method of preparing data in an electronic publishing system that results in more rapid data transmission in a network, and provides a method wherein published pages can be displayed on a variety of destination devices in a form most resembling the layout of the original publication. According to the method of the present invention, a host computer is programmed with sub-routines for automatically laying out articles in specified fields according to selected templates to conform to the requirements of the destination display/device. Each sub-routine is programmed for activation upon

receipt of relatively brief instructional data, referred to as "tags" and "meta data". The tags are inserted along with the original data files to instruct the destination/host to activate the corresponding sub-routines. For example, the host computer, loaded with the required program, automatically lays out the text in fields adjusted according to pre-selected templates for a particular size of paper.

An advantage of the present invention is that it allows more rapid transmission of published pages through a communications network.

A further advantage of the present invention is that it allows published pages to be displayed on a variety of destination devices.

A still further advantage of the present invention is that it avoids the need to completely re-publish data if a change is required.

IN THE DRAWING

Fig. 1 shows a system for creating a publication and transmitting it to one or more users through a communications network;

Fig. 2 shows a prior art organization of data to be transferred including complete text and graphics image data;

Fig. 3 shows the use of tags according to the present invention;

Fig. 4 is a flow chart illustrating the steps of creating, transmitting and viewing a publication;

Fig. 5 illustrates the capability of user selection of material according to the method of the present invention;

Fig. 6 is a list of examples of publication types;

Fig. 7A shows an original publisher's layout; and

Fig. 7B shows a layout modified by a host computer to fit a user's printer.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to Fig. 1 of the drawing, the method of the present invention is illustrated. Generally, information is accumulated through a network 10 from a

variety of sources illustrated by 12, 14, 16 which can be of any number and type. One of the sources, for example, can be an internet site. The information from the source is then preferably filtered for relevance, as indicated by filter 18, and stored in a database 20.

The information is then viewed at editorial stations 22 and layout stations 24. Although two editorial and two layout stations are shown, they can be of any number. As the information/data is reviewed at the editorial station, the editor assigns special inventory tags including information relevant to the incorporation of the data in a publication. Examples of relevant information include the author's name, the publication section it belongs to (fashion, sports, news, etc.), and relevance (breaking news, sidebar, educational, general, etc.). This information is used in the layout phase.

During the layout phase, an editor uses the inventory tags to select information relevant to the publication section being worked on. Typically, an editor is assigned a particular section such as news, sports, economy, etc. The editor uses a variety of graphics tools to prepare the publication. Each article/information segment selected for publication is assigned to a particular field on a page according to a selected template. A corresponding layout tag is assigned to activate a corresponding host sub-routine loaded in the destination/host device to automatically layout the articles/information according to the layout specified by the editor for each information/article as arranged using the graphics tools.

The required information/articles, with their assigned layout tags are then sent over network 26 to a particular destination, such as a press printer, remote printer 30, or a home printer 32. The host/destination device then responds by way of the pre-loaded program to arrange the information according to subroutines activated by the layout tags, to place the information/articles in the appropriate fields and according to the templates, adjusting each template to conform to the limitations of the host display. In this manner, the form and layout of the original publication is maintained, retaining the look and feel of the original, while at the

same time conforming the layout to the limitations of the host display device. The method of the present invention provides a large increase in the speed of transmission, since the complete graphics image data is not transmitted, but only bare data and tags for activating the graphics routines pre-loaded in the host. Although one source network 10 and one transmission network 26, and three different host devices 28-32 are illustrated in Fig. 1, any quantity of hosts and networks can be involved in the distribution and reception of the publication. The quantities in Fig. 1 are given only as an example.

Fig. 2 represents the prior art wherein complete graphics 34 image data 34 is transmitted along with text routines 36, 38 for organizing corresponding text data 42, 44. For example, suppose a user wants a header to appear as large fonts with a shadow next to it for a "3-d" appearance. In the prior art of Fig. 2, the user opens a graphic package, types the header, and adds shadow, adjusting it until the required result is reached. The image is then saved in an image form, typically having a .GIF or .JPG notation. The complete data defining the image is sent to the host, referred to as block 34 in Fig. 2. The data content is very large, including hundreds to thousands of bytes per character.

According to the present invention, as illustrated in Fig. 3, the text routines 36, 38 of Fig. 2 are replaced with tags 46, 48, and the complete graphics 34 of Fig. 2 is replaced with basic graphics data 40 and tag 46, the tags constructed from relatively few bytes of data for the purpose of activating appropriate text and graphics routines that are preloaded into the host computer/device. In the above example of a header with added shadow, according to the present invention the few bytes of text would be sent along with tags to instruct the host to create the shadow, eliminating the need to transmit the larger quantity of graphics image data making up the entire header text with shadow. In the prior art method, the text routines 36, 38 and graphics image data 34 typically account for about 90% of the total data transferred. Replacing the text routines 36, 38 and graphics 34 in the data stream of Fig. 2 with relatively simple commands (tags) 46, 48, 50 of Fig. 3 according to the

present invention results in a large reduction of the total data to be transmitted, and a correspondingly large reduction in the time required to transmit the data. With this major improvement in speed, the transmission of larger documents/publications to users becomes a practical reality. For example, in the past, downloading the contents of a newspaper would take more time than a typical user's patience could endure, typically more than five minutes. With the system of the present invention, this time is reduced significantly, typically by a factor of 5 or more. The method of the present invention only requires that the host have the required program loaded, including the necessary sub-routines.

Referring now to Fig. 4, various steps in the method of the present invention are illustrated in a flow chart. Information containing articles is received from various sources (block 52), filtered to remove articles that are not relevant and then stored in a database (block 54). An editor then receives each article from the database (block 56) and applies an inventory tag (block 58) containing relevant information, such as the author's name, the publication section it belongs to, and relevance, etc.

An editor then performs a layout (block 60) by selecting articles/information from the database with the help of the inventory tags, and by applying various tools to configure the articles/information for display on a page. The editor's layout, according to the present invention, is configured to correspond to a template stored in the host device. Each article is assigned to a particular template and placed in a particular field on a page through use of a layout tag attached to the article (block 62). The articles with layout tags are then sent to the host (block 64). The various articles are then placed in their appropriate fields, each field having dimensions according to the selected template, adjusted to fit the specific host display according to the host program activated by the layout tag for each article (block 66). Block 66 also indicates adjustment per client options. For example, a particular user/client may want larger print. The user also has other options that can be specified at the host device, causing the host program to re-adjust the fields accordingly, as will be

discussed in the following.

An additional feature of the invention is noted by blocks 68 and 70 and alternate-lines 72, 74 instead of the direct route 76 from block 62 to block 64. Alternate block 68 allows a user to request particular information from the publisher. For example, if the publication is a periodical, the user could request all articles dealing with a particular subject in issues from a particular date, or in a range of dates. The publisher would then respond by collecting the information from the publication(s) (block 70) and then transmitting them (block 64).

A similar procedure to blocks 68, 70 is illustrated in Fig. 5 wherein a user after receiving a publication (block 78), can select appropriate options from the sub-routines (block 80), and can conduct a search in the publication for a particular information type desired (block 82), and then view and/or print that information (block 84).

The information included in the publications according to the present invention can be of any type. Fig. 6 lists telephone book yellow pages, newspapers, catalogs, TV and movie guides, classified ads, magazines, miscellaneous publications, technical journals, etc.

The operation of the pre-host computer program in adjusting the information to the particular host display is more clearly illustrated in reference to Figs. 7A and 7B. Fig. 7A, for example, is given as an illustration of a publisher's layout of information items in fields A-F for display on a 33 ¼ inch by 22 inch newspaper page. As an example, a host display device may be a printer with 8 ½ x 11 inch paper. According to the present invention, the host pre-loaded program automatically adjusts the fields A-F to conform to the 8 ½ x 11 inch paper as shown in Fig. 7B, retaining the relative positions of the fields, and thereby the overall look and feel of the newspaper. The example of Fig. 7B narrows each field to fit the 8½ inch paper width, and extends the length to retain each field's total area. Other formulas for adjustment will be apparent to those skilled in the art, and these are included in the spirit of the present invention.

Although the present invention has been described above in terms of a specific embodiment, it is anticipated that alterations and modifications thereof will no doubt become apparent to those skilled in the art. It is therefore intended that the following claims be interpreted as covering all such alterations and modifications as fall within the true spirit and scope of the invention.

What is claimed is:

CLAIMS

1. A method of electronic publishing comprising:

(a) preparing publication data for transmission through a communications network to a host device; and

(b) preparing layout tags for transmission with said publication data, said tags for directing said host device to display said publication data according to a predetermined layout.

2. A method as recited in claim 1 further comprising:

loading said host device with a program, said program responsive to said layout tags to configure said publication data for display by said host device.

3. A method as recited in claim 2 further comprising:

transmitting said data stream through said communications network to said host device.

4. A method as recited in claim 3 further comprising selecting formatting and layout options from said program.

5. A method as recited in claim 4 further comprising viewing said publication.

6. A method as recited in claim 4 further comprising printing said publication.

7. A method as recited in claim 2 further comprising:

sending a request for specific information to said publisher from said

host device through said network to said publisher.

8. A method as recited in claim 7 further comprising:

(a) retrieving said specific information; and

(b) transmitting said specific information to said host device.

9. A method as recited in claim 3 further comprising:

(a) searching for specific information in said publication data transmitted to said host device; and

(b) viewing said specific information on said host device.

10. A method as recited in claim 1 wherein said publication data includes newspaper data.

11. A method as recited in claim 1 wherein said publication data includes catalog data.

12. A method as recited in claim 1 wherein said publication data includes TV and movie guide data.

13. A method as recited in claim 1 wherein said publication data includes classified ad data.

14. A method as recited in claim 1 wherein said publication data includes magazine data.

15. A method as recited in claim 1 wherein said publication data includes trade journal data.

16. A method as recited in claim 1 wherein said publication data includes telephone book yellow pages.

17. A method of electronic publishing comprising:

(a) collecting a first plurality of articles from sources;

(b) tagging each separate article with an inventory tag;

(c) selecting a second plurality of said articles using said inventory tags;

(d) arranging said second plurality of articles according to a layout for publication on a page; and

(e) assigning a layout tag to each of said second plurality of articles, each said tag for identifying a position and configuration of each of said second plurality of articles on a page.

18. A method as recited in claim 17 further comprising:

(a) transmitting said articles and tags over a communications network to a host device; and

(b) responding to each said layout tag at said host device to reconfigure each said article for display so as to maintain the relative positions of the articles according to said layout.

19. A method as recited in claim 2 wherein

said publication data includes base material to be enhanced by a graphics routine included in said program; and

said layout tags include a graphics tag to direct said host device to activate said program to enhance said base material with graphics.

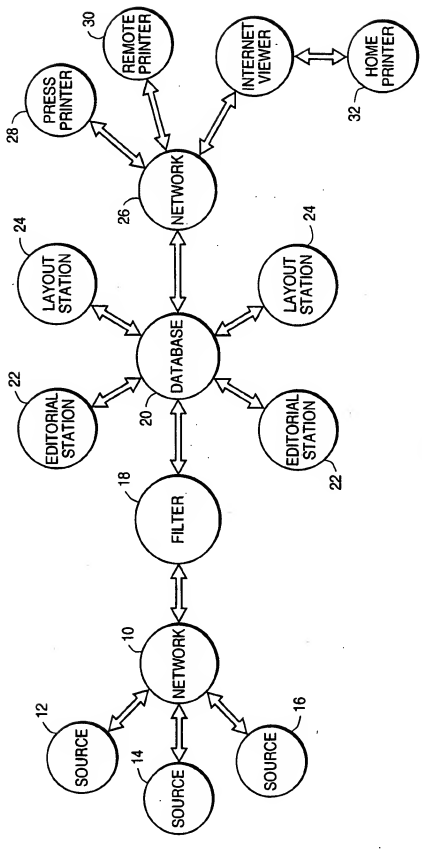
SOURCE
12
SOURCE
14
SOURCE
16
NETWORK
10
FILTER
18
DATABASE
20
EDITORIAL STATION
22
EDITORIAL STATION
22
LAYOUT STATION
24
LAYOUT STATION
24
NETWORK
26
PRESS PRINTER
28
REMOTE PRINTER
30
INTERNET VIEWER
HOME PRINTER
32

FIG. 1

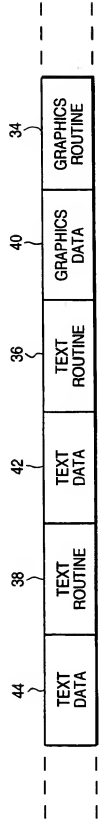

FIG. 2 (PRIOR ART)

FIG. 3

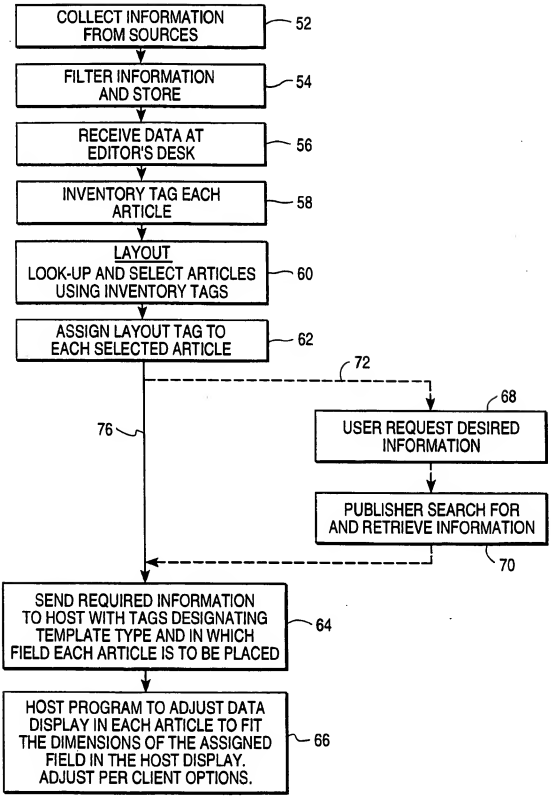
COLLECT INFORMATION FROM SOURCES
52
FILTER INFORMATION AND STORE
54
RECEIVE DATA AT EDITOR'S DESK
56
INVENTORY TAG EACH ARTICLE
58
LAYOUT
LOOK-UP AND SELECT ARTICLES USING INVENTORY TAGS
60
ASSIGN LAYOUT TAG TO EACH SELECTED ARTICLE
62
72
68
76
USER REQUEST DESIRED INFORMATION
PUBLISHER SEARCH FOR AND RETRIEVE INFORMATION
70
SEND REQUIRED INFORMATION TO HOST WITH TAGS DESIGNATING TEMPLATE TYPE AND IN WHICH FIELD EACH ARTICLE IS TO BE PLACED
64
HOST PROGRAM TO ADJUST DATA DISPLAY IN EACH ARTICLE TO FIT THE DIMENSIONS OF THE ASSIGNED FIELD IN THE HOST DISPLAY. ADJUST PER CLIENT OPTIONS.
66

FIG. 4

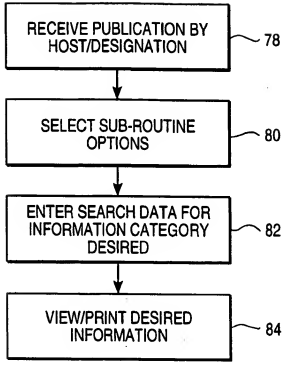

FIG. 5

* NEWSPAPERS
* CATALOGS
* TV & MOVIE GUIDES
* CLASSIFIED ADS
* MAGAZINES
* PUBLICATIONS, JOURNALS, ETC.

FIG. 6

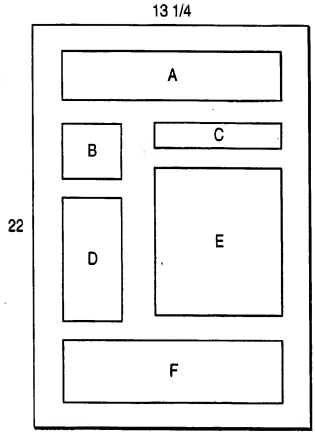

FIG. 7A

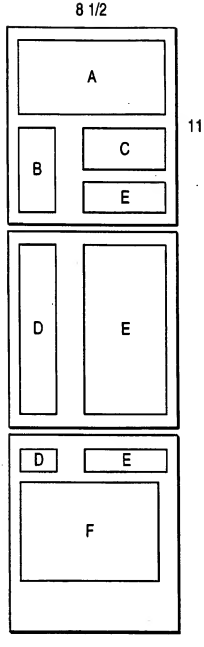

FIG. 7B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/15788

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G06F17/21
US CL : 709/201, 231; 707/517, 522, 523

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 709/201, 231; 707/517, 522, 523

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, DIALOG, GPI WEB
search terms: transmission, publication, document, template, form, substitute, replace

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	US 5,895,477 A (ORR et al) 20 April 1999, entire document	1-19
A,P	US 5,893,127 A (TYAN et al) 06 April 1999, entire document	1-19
A,P	US 5,880,740 A (HALLIDAY et al) 09 March 1999, entire document	1-19
A,P	US 5,872,640 A (COHEN et al) 16 February 1999, entire document	1-19
A,P	US 5,850,490 A (JOHNSON) 15 December 1998, entire document	1-19
A	US 5,450,571 A (ROSEKRANS et al) 12 September 1995, entire document	1-19

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"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

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